Declaration of Performance Number 1020-CPD-010031645

According to Regulation EU No 305/2011

Item code: **VS11, VS13, VS21, VS31, VS33, VS71, VS81, VS83**

Manufacturer: **Tecfi S.p.A. - S.S. Appia, km 193 - 81050 Pastorano (CE), Italy**

Table 1 - Intended use	
Generic type:	Plastic anchor for multiple use in concrete and masonry for non-structural applications.
Base material:	Cracked and non-cracked concrete with strength class C12/15 at minimum and C50/60 at maximum, according to EN 206-1:2000-12, solid masonry, hollow masonry and aerate autoclaved concrete and mortar strength class ≥ M 2,5 according to EN 998-2:2003
Screw material:	Carbon steel grade 5.8 (galvanized min. 5 µm according to ISO 2081) and Stainless steel A4/70 (AISI 316) according to ISO 3506-1 and EN 10088-3
Durability:	***Specific screw of galvanized steel:*** The specific screw made of galvanized steel may only be used in structures subject to dry internal conditions. The specific screw may also be used in structures subject to external atmospheric exposure or exposure in permanently damp internal conditions, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars). ***Specific screw of stainless steel:*** The specific screw made of stainless steel may be used in structures subject to dry internal conditions and also in structures subject to external atmospheric exposure (including industrial and marine environment), or exposure in permanently damp internal conditions, if no particular aggressive conditions exist. Such particular aggressive conditions are e. g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e. g. in desulphurization plants or road tunnels where de-icing materials are used).
Loading:	Static and quasi-static
Fire resistance:	According to the EOTA Technical Report TR 020 "Evaluation of anchorages in concrete concerning resistance to fire" it can be assumed that for fastening of facade systems the load bearing behaviour of the Tecfi VS-Handyplug Ø 10, has a sufficient resistance to fire at least 90 minutes (R90) if the admissible load $[F_{Rk} / (\gamma_M \cdot \gamma_F)]$ is ≤ 0,8 kN (no permanent centric tension load).
Fire reaction:	NPD
ETA:	ETA 13/0135, issued by DIBT
On the basis of:	Etag 020 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011
Attestation of Conformity:	EC number 1020-CPD-010031645, issued by TZUS
Under system:	2+

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Figure 1 – Anchor types and installation parameters

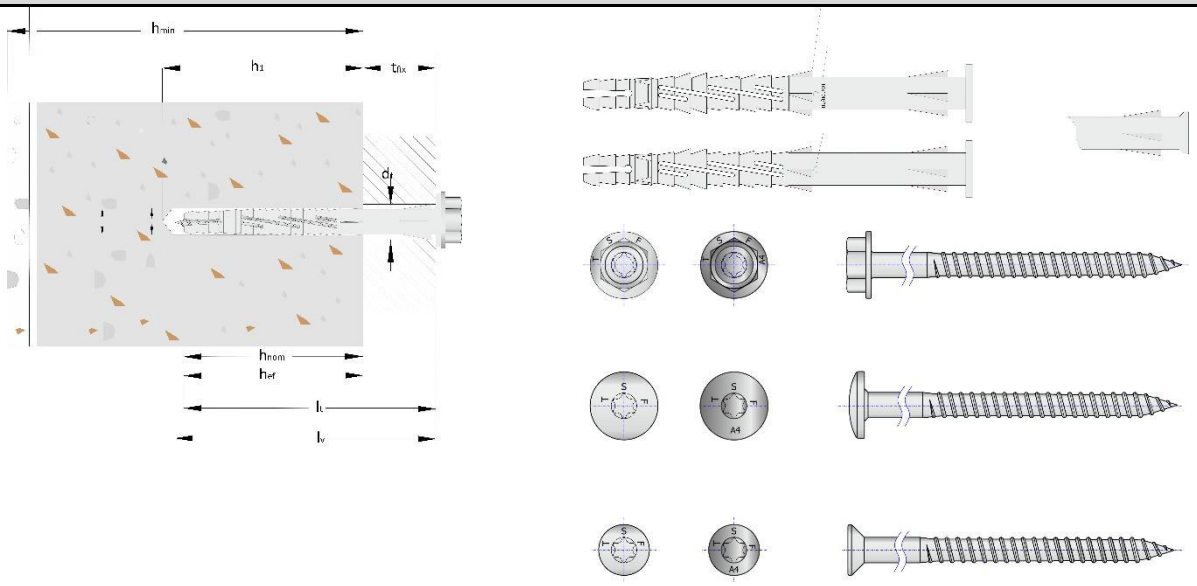

Figure 2 - Installation sequence

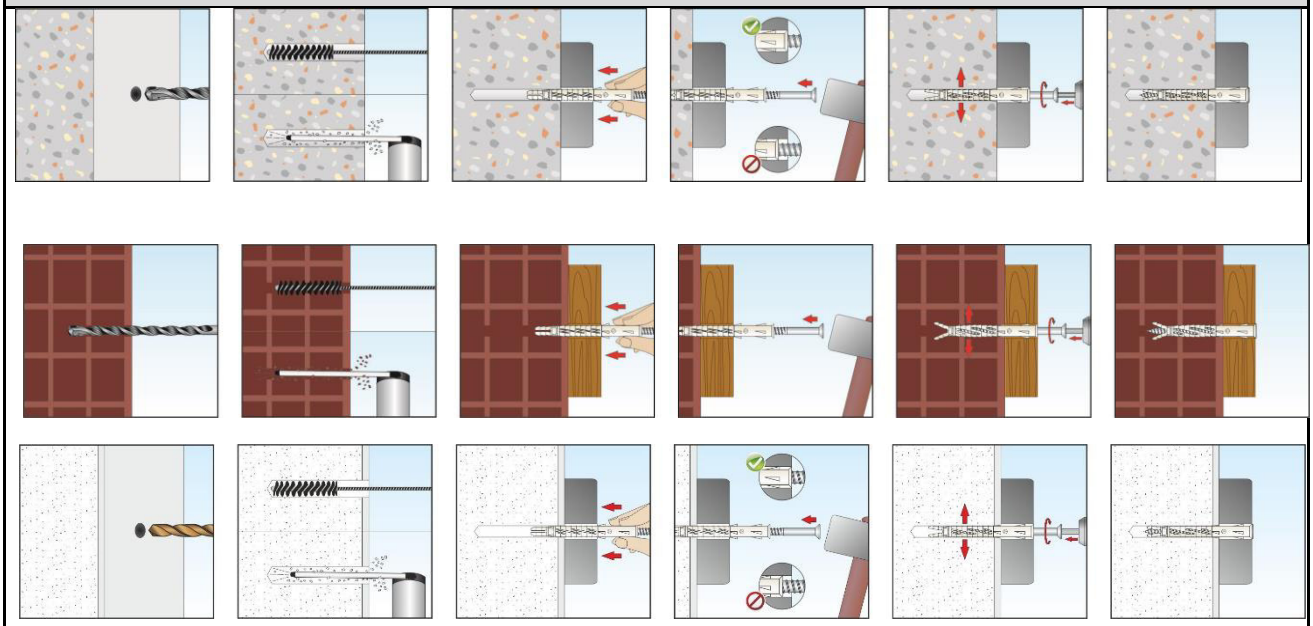

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Table 2 - Declared Performances according to ETAG 020 part 1 - 5					
Installation parameters					
Anchor type		***VS Ø8***		***VS Ø10***	
Outside diameter of anchor	d_{nom}= [mm]	8		10	
Screw diameter	dv = [mm]	6		7	
Nominal drill hole diameter	d_o [mm]	8		10	
Depth of drill hole	h_1 = [mm]	90		90	
Effective anchorage depth	h_{ef} = [mm]	70		70	
Diameter of clearance hole in the fixture	d_f = [mm]	9		11	
Hexalobular socket number (ISO 10664)	T	30		40	
Wrench size (for hexagonal head only)	SW = [mm]	10		13	
Characteristic bending resistance of the screw in concrete and masonry[1)]					
Size		***VS Ø8***		***VS Ø10***	
		Galvanized steel	*Stainless steel*	*Galvanized steel*	*Stainless steel*
Charcteristic bending resistance	$M_{Rk,s}$ [Nm]	12,1	16,9	19,3	27,1
Partial safety factor	γ_{Ms} [-]	1,25			
Characteristic resistance of the screw in concrete and masonry[1)]					
Size		***VS Ø8***		***VS Ø10***	
		Galvanized steel	*Stainless steel*	*Galvanized steel*	*Stainless steel*
Characteristic tension resistance	$N_{Rk,s}$ [kN]	11,3	15,8	15,4	21,6
Partial safety factor	γ_{Ms} [-]	1,5			
Characteristic shear resistance	$V_{Rk,s}$ [kN]	5,6	7,9	7,7	10,8
Partial safety factor	γ_{Ms} [-]	1,25			
Characteristic resistance for use in concrete[1)]					
Plastic sleeve pull-out failure		***VS Ø8***		***VS Ø10***	
Temperature range		*24°C / 40°C*	*50°C / 80°C*	*24°C / 40°C*	*50°C / 80°C*
Characteristic tension resistance	$N_{Rk,p}$ [kN]	3,5	3,0	4,5	4,0
Partial safety factor	γ_{Mc}[2)] [-]	1,8			
Plastic sleeve pull-out failure under fire exposure		***VS Ø8***		***VS Ø10***	
in any load direction, no permanent centric tension load and without lever arm, fastening of façade systems					
Characteristic tension resistance	$N_{Rk,p,R90}$ [kN]	NPD		0,8	

[1)] Concrete strength $f_{ck} \geq 16/20$ (Strength class according to EN 206-1:2000-12)

[2)] In absence of other national regulations

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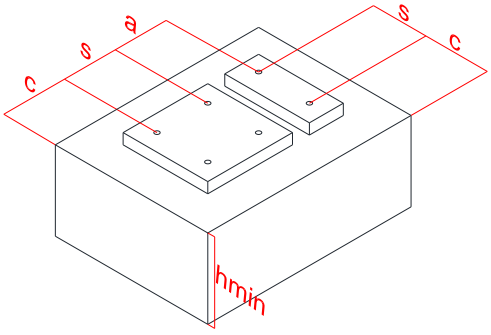
Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Displacements under tension load in concrete			
Parameter / Size		***VS Ø8***	***VS Ø10***
Service tension load concrete	**N [kN]**	1,2	1,6
Displacements	**δ_{N0} [mm]**	0,24	0,29
	$\delta_{N\infty}$ [mm]	0,48	0,58
Displacements under shear load in concrete			
Parameter / Size		***VS Ø8***	***VS Ø10***
Service tension load concrete	**N [kN]**	3,2	4,4
Displacements	**δ_{V0} [mm]**	2,00	1,67
	$\delta_{V\infty}$ [mm]	3,00	2,50

[1] Concrete strength $f_{ck} \geq 16$ [N/mm^2] (strength class C16/20 acc. to EN 206-1:2000-12)

[2] In absence of other national regulations

[3] Design method according to ETAG 020, Annex C

Minimum thickness of the member, edge distance and spacing in concrete			
Size		***VS Ø8***	***VS Ø10***
Concrete class		≥16/20	
Mnimum tickness of the member	**h_{min} [mm]**	140	
Characteristic edge distance	**$c_{cr,N}$[1] [mm]**	105	105
Characteristic spacing	**$s_{cr,N}$[1] [mm]**	75	90
Minimum allowable spacing and edge distance[1]	**s_{min} [mm]**	90	100
	c_{min} [mm]	90	100



Fixing points with a spacing a ≤ scr,N are considered as a group with a maximum characteristic resistance NRk,p acc. to Table 2. For a spacing a ≥ scr,N the anchors are considered as single anchors, each with a characteristic resistance NRk,p acc. to Table 2.

[1] Intermediate value by linear interpolation

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Solid masonry type "A" (use category "b")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Solid clay brick acc. to EN771-1:2011 - Mattone pieno 110x60x240 "Danesi"	Rotary + hammer	1,7	39,0
Characteristic resistance in solid masonry Type "A"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	3,0	2,0
Service tension load in solid masonry	**N [kN]**	0,9	0,6
Displacements	**δ_{N0} [mm]**	0,04	0,06
	$\delta_{N\infty}$ [mm]	0,08	0,12
Minimum thickness of the member, edge distance and spacing in solid masonry type "A"			
Size		***VS Ø8***	***VS Ø10***
Mnimum tickness of the member	**h_{min} [mm]**	110	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	120	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	240	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	480	
Minimum edge distance	**c_{min} [mm]**	120	
Displacements under shear load in solid masonry type "A"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in solid masonry	**V [kN]**	3,2	4,4
Displacements	**δ_{V0} [mm]**	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1 of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Solid masonry type "B" (use category "b")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Solid clay brick acc. to EN771-1:2011 - - Mattone pieno 250x120x55 "Terreal Italia"	Rotary + hammer	1,7	27,0
Characteristic resistance in solid masonry type "B"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1) [kN]**	4,0	5,0
Service tension load in solid masonry	**N [kN]**	1,1	1,4
Displacements	**δ_{N0} [mm]**	0,25	0,67
	$\delta_{N\infty}$ [mm]	0,50	1,34
Minimum thickness of the member, edge distance and spacing in solid masonry type "B"			
Size		***VS Ø8***	***VS Ø10***
Mnimum tickness of the member	**h_{min} [mm]**	120	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	125	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	250	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	500	
Minimum edge distance	**c_{min} [mm]**	125	
Displacements under shear load in solid masonry type "B"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in solid masonry	**V [kN]**	3,2	4,4
Displacements	**δ_{V0} [mm]**	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

[1)] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1 of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Solid masonry type "E" (use category "b")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Vulcanic tuff brick acc. to EN771-3:2011 - - Fior di tufo 370x370x110 "Cave riunite"	Rotary + hammer	2,4	7,5
Characteristic resistance in solid masonry type "E"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	-	0,3
Service tension load in solid masonry	**N [kN]**	-	0,09
Displacements	**δ_{N0} [mm]**	-	0,01
	$\delta_{N\infty}$ [mm]	-	0,02
Minimum thickness of the member, edge distance and spacing in solid masonry type "E"			
Size		***VS Ø8***	***VS Ø10***
Mnimum tickness of the member	**h_{min} [mm]**	120	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	370	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	185	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	370	
Minimum edge distance	**c_{min} [mm]**	185	
Displacements under shear load in solid masonry type "E"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in solid masonry	**V [kN]**	3,2	4,4
Displacements	**δ_{V0} [mm]**	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Solid masonry type "F" (use category "b")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Calcium silicate solid brick, acc. EN 771-2:2011 Kalksandsteine KS-Plansteine KS-R(P)-20-2,0-8DF (240) "Heidelberger-Kalksandstein"	Rotary + hammer	1,9	28,2
Characteristic resistance in solid masonry type "F"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	5,5	6,0
Service tension load in solid masonry	**N [kN]**	1,57	1,71
Displacements	**δ_{N0} [mm]**	0,14	0,07
	$\delta_{N\infty}$ [mm]	0,29	0,15
Minimum thickness of the member, edge distance and spacing in solid masonry type "F"			
Size		***VS Ø8***	***VS Ø10***
Mnimum tickness of the member	**h_{min} [mm]**	240	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	120	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	240	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	480	
Minimum edge distance	**c_{min} [mm]**	120	
Displacements under shear load in solid masonry type "F"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in solid masonry	**V [kN]**	3,2	4,4
Displacements	**δ_{V0} [mm]**	2,67	3,67
	$\delta_{V\infty}$ [mm]	4,00	5,50

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to annex B.1 of ETA 13/0135

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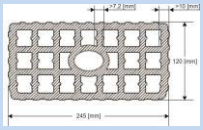
Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties –Hollow masonry type "C" (use category "c")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Perforated clay brick, acc. EN 771-1:2011 - Doppio doppio UNI 120x245x250 "Danesi" 	Rotary	0,9	13,0
Characteristic resistance in hollow masonry type "C"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1) [kN]**	-	0,3
Service tension load in hollow masonry	**N [kN]**	-	0,09
Displacements	**δ_{N0} [mm]**	-	0,12
	$\delta_{N\infty}$ [mm]	-	0,24
Minimum thickness of the member, edge distance and spacing in hollow masonry type "C"			
Size		***VS Ø8***	***VS Ø10***
Mnimum tickness of the member	**h_{min} [mm]**	-	120
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	-	125
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	-	250
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	-	500
Minimum edge distance	**c_{min} [mm]**	-	125
Displacements under shear load in hollow masonry type "C"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in hollow masonry	**V [kN]**	-	4,4
Displacements	**δ_{V0} [mm]**	-	8,80
	$\delta_{V\infty}$ [mm]	-	13,20

[1)] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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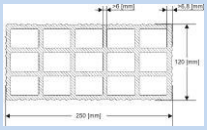
Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Hollow masonry type "D" (use category "c")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Perforated clay brick, acc. EN 771-1:2011 - Forati 120x250x250 "Wienerberger" 	Rotary	0,6	2,0
Characteristic resistance in hollow masonry type "D"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	0,3	-
Service tension load in hollow masonry	**N [kN]**	0,09	-
Displacements	**δ_{N0} [mm]**	0,03	-
	$\delta_{N\infty}$ [mm]	0,06	-
Minimum thickness of the member, edge distance and spacing in hollow masonry type "D"			
Size		***VS Ø8***	***VS Ø10***
Minimum thickness of the member	**h_{min} [mm]**	120	-
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	125	-
Anchor Group			
Spacing perpendicular to free edge	**$s_{1,min}$ [mm]**	250	-
Spacing parallel to free edge	**$s_{2,min}$ [mm]**	500	-
Minimum edge distance	**c_{min} [mm]**	125	-
Displacements under shear load in hollow masonry type "D"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in hollow masonry	**V [kN]**	3,2	-
Displacements	**δ_{V0} [mm]**	6,40	-
	$\delta_{V\infty}$ [mm]	9,60	-

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135

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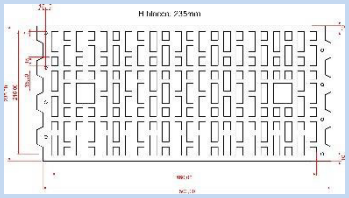
Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Hollow masonry type "G" (use category "c")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Perforated clay brick, acc. EN 771-1:2011 Poroton-Hochlochziegel-Block-T-24,0-0,9 L "Wienerberger" 	Rotary	0,9	7,0
Characteristic resistance in hollow masonry type "G"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	0,9	0,9
Service tension load in hollow masonry	**N [kN]**	0,26	0,26
Displacements	**δ_{N0} [mm]**	0,01	0,01
	$\delta_{N\infty}$ [mm]	0,02	0,02
Minimum thickness of the member, edge distance and spacing in hollow masonry type "G"			
Size		***VS Ø8***	***VS Ø10***
Minimum thickness of the member	**h_{min} [mm]**	240	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	120	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	240	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	480	
Minimum edge distance	**c_{min} [mm]**	120	
Displacements under shear load in hollow masonry type "G"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in hollow masonry	**V [kN]**	0,26	0,26
Displacements	**δ_{V0} [mm]**	0,21	0,21
	$\delta_{V\infty}$ [mm]	0,32	0,32

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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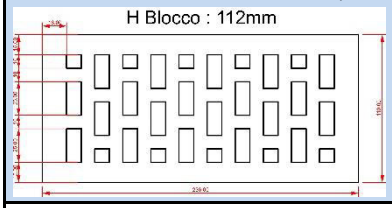
Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Hollow masonry type "H" (use category "c")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Perforated clay brick, acc. EN 771-1:2011 Poroton-Kleinformat HlzB- 2DF -0,9 "Wienerberger" 	Rotary	0,9	16,4
Characteristic resistance in hollow masonry type "H"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	0,9	0,9
Service tension load in hollow masonry	**N [kN]**	0,26	0,26
Displacements	**δ_{N0} [mm]**	0,01	0,01
	$\delta_{N\infty}$ [mm]	0,02	0,02
Minimum thickness of the member, edge distance and spacing in hollow masonry type "H"			
Size		***VS Ø8***	***VS Ø10***
Minimum thickness of the member	**h_{min} [mm]**	115	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	120	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	240	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	480	
Minimum edge distance	**c_{min} [mm]**	120	
Displacements under shear load in hollow masonry type "H"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in hollow masonry	**V [kN]**	0,26	0,26
Displacements	**δ_{V0} [mm]**	0,21	0,21
	$\delta_{V\infty}$ [mm]	0,32	0,32

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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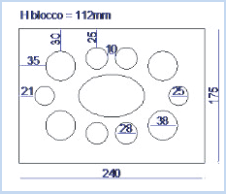
Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – Hollow masonry type "I" (use category "c")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Hollow calcium silicate brick acc. EN 771-2:2011 "Heidelberger-Kalksandstein" KS-L 	Rotary	1,5	16,3
Characteristic resistance in hollow masonry type "I"			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	5,0	5,5
Service tension load in hollow masonry	**N [kN]**	1,43	1,57
Displacements	**δ_{N0} [mm]**	0,11	0,08
	$\delta_{N\infty}$ [mm]	0,21	0,17
Minimum thickness of the member, edge distance and spacing in hollow masonry type "I"			
Size		***VS Ø8***	***VS Ø10***
Minimum thickness of the member	**h_{min} [mm]**	175	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	120	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	240	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	480	
Minimum edge distance	**c_{min} [mm]**	120	
Displacements under shear load in hollow masonry type "I"			
Size		***VS Ø8***	***VS Ø10***
Service shear load in hollow masonry	**V [kN]**	1,43	1,57
Displacements	**δ_{V0} [mm]**	1,19	1,31
	$\delta_{V\infty}$ [mm]	1,79	1,96

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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Table 2 (cont.) - Declared Performances according to ETAG 020 part 1 - 5			
Geometry and mechanical properties – autoclaved aerated concrete (use category "d")			
Base material	***Drill method***	***Bulk density class ρ***	***Minimum compressive strength f_b***
Description	**-**	**[kg/dm³]**	**[N/mm²]**
Non-cracked aerated autoclaved concrete (AAC Blocks) EN 771-4: 2011	Rotary	0,5	3,5
Characteristic resistance in autoclaved aerated concrete			
Size		***VS Ø8***	***VS Ø10***
Characteristic resistance	**F_{rk}[1] [kN]**	0,5	0,6
Service tension load in autoclaved aerated concrete	**N [kN]**	0,18	0,21
Displacements	**δ_{N0} [mm]**	0,01	0,01
	$\delta_{N\infty}$ [mm]	0,02	0,02
Minimum thickness of the member, edge distance and spacing in autoclaved aerated concrete			
Size		***VS Ø8***	***VS Ø10***
Minimum thickness of the member	**h_{min} [mm]**	240	
Single Anchor			
Minimum edge distance	**c_{min} [mm]**	120	
Anchor Group			
Spacing perpendicular to free edge	**$S_{1,min}$ [mm]**	240	
Spacing parallel to free edge	**$S_{2,min}$ [mm]**	480	
Minimum edge distance	**c_{min} [mm]**	120	
Displacements under shear load in in autoclaved aerated concrete			
Size		***VS Ø8***	***VS Ø10***
Service shear load in autoclaved aerated concrete	**V [kN]**	0,18	0,21
Displacements	**δ_{V0} [mm]**	0,36	0,43
	$\delta_{V\infty}$ [mm]	0,54	0,64

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading, is valid for single plastic anchor or for a group of two or four plastic anchors with a spacing equal or larger than the minimum spacing s_{min}. The specific conditions for the design method have to be considered according to Annex B.1. of ETA 13/0135.

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Table 3 – VS11, VS13, VS21, VS31, VS33, VS71, VS81, VS83 ranges				
Ø	***d_o [mm]***	***l [mm]***	***t_{fix} [mm]***	***Item code***
Ø8	8	80	10	VS 11 08 080, VS 13 08 080, VS 21 08 080, VS 31 08 080, VS 33 08 080, VS 71 08 080, VS 81 08 080, VS 83 08 080
		100	30	VS 11 08 100, VS 13 08 100, VS 21 08 100, VS 31 08 100, VS 33 08 100, VS 71 08 100, VS 81 08 100, VS 83 08 100
		120	50	VS 11 08 120, VS 13 08 120, VS 21 08 120, VS 31 08 120, VS 33 08 120, VS 71 08 120, VS 81 08 120, VS 83 08 120
		140	70	VS 11 08 140, VS 13 08 140, VS 21 08 140, VS 31 08 140, VS 33 08 140, VS 71 08 140, VS 81 08 140, VS 83 08 140
Ø 10	10	80	10	VS 11 10 080, VS 13 10 080, VS 21 10 080, VS 31 10 080, VS 33 10 080, VS 71 10 080, VS 81 10 080, VS 83 10 080
		100	30	VS 11 10 100, VS 13 10 100, VS 21 10 100, VS 31 10 100, VS 33 10 100, VS 71 10 100, VS 81 10 100, VS 83 10 100
		120	50	VS 11 10 120, VS 13 10 120, VS 21 10 120, VS 31 10 120, VS 33 10 120, VS 71 10 120, VS 81 10 120, VS 83 10 120
		140	70	VS 11 10 140, VS 13 10 140, VS 21 10 140, VS 31 10 140, VS 33 10 140, VS 71 10 140, VS 81 10 140, VS 83 10 140
		160	90	VS 11 10 160, VS 13 10 160, VS 21 10 160, VS 31 10 160, VS 33 10 160, VS 71 10 160, VS 81 10 160, VS 83 10 160
		200	130	VS 11 10 200, VS 13 10 200, VS 21 10 200, VS 31 10 200, VS 33 10 200, VS 71 10 200, VS 81 10 200, VS 83 10 200
		230	160	VS 11 10 230, VS 13 10 230, VS 21 10 230, VS 31 10 230, VS 33 10 230, VS 71 10 230, VS 81 10 230, VS 83 10 230

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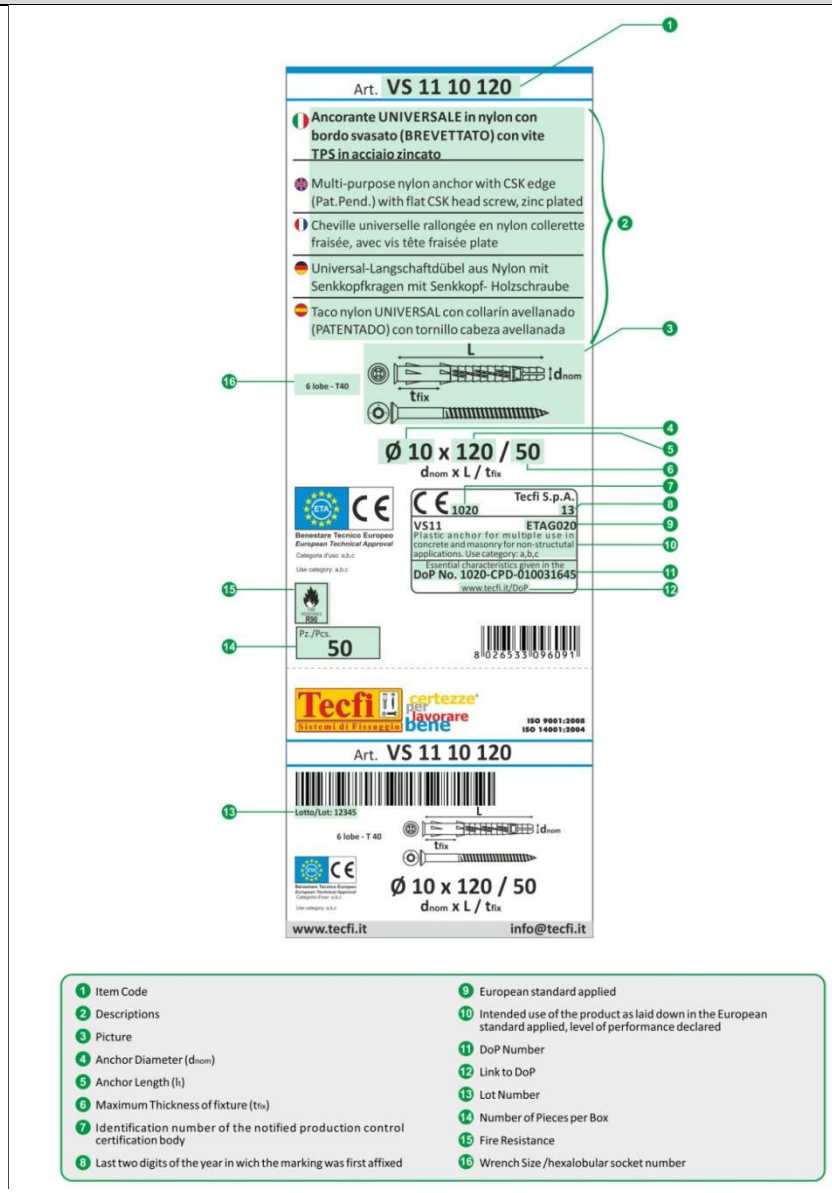
Figure 3 - Label



1. Item Code
2. Descriptions
3. Picture
4. Anchor Diameter (d_{nom})
5. Anchor Length (l_f)
6. Maximum Thickness of fixture (t_{fix})
7. Identification number of the notified production control certification body
8. Last two digits of the year in wich the marking was first affixed
9. European standard applied
10. Intended use of the product as laid down in the European standard applied, level of performance declared
11. DoP Number
12. Link to DoP
13. Lot Number
14. Number of Pieces per Box
15. Fire Resistance
16. Wrench Size /hexalobular socket number

The performances of the product identified by the above identification code are in conformity with the declared performance. This declaration of performance is issued under the sole responsibility of Tecfi S.p.A.

Signed for and behalf of the manufacturer by:

Name and function	***Place and date of issue***	***Signature***
President Antonio Guarino	Pastorano, September 8th 2017	